university of groningen

University Medical Center Groningen

University of Groningen

Three-year old boys treasure pirate memories

Wessel, Ineke; Rutten, Vera; Ruiter, Selma

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Final author's version (accepted by publisher, after peer review)

Publication date:
2014

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):
Wessel, I., Rutten, V., & Ruiter, S. (2014). *Three-year old boys treasure pirate memories: Gender and episodic memory in preschoolers*. Poster session presented at Comparative Perspectives on Autobiographical Memory: What Human and Non-human Animals Remember About Their Past, Arhus, Denmark.

Copyright
Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license. More information can be found on the University of Groningen website: https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment.

Take-down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): http://www.rug.nl/research/portal. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Download date: 05-05-2023

Three year old boys treasure pirate memories
Gender and episodic memory in preschoolers

Ineke Wessel, Vera C. Rutten, and Selma A.J. Ruiter
University of Groningen, Groningen, The Netherlands

Introduction

According to Tulving (2005), an important feature of the episodic memory system is mental time travel. This refers to the capacity for both reliving past personal experiences and imagining oneself in future situations. Tulving (2005) also hypothesized that this episodic memory system is not operational before the age of 4. Indeed, Scarf, Gross, Colombo and Hayne (2013) found that 3-year olds performed at chance level on a task that involved using the memory of an earlier episode in order to prepare for a future act. Of the 4-year olds, 75% succeeded. Furthermore, Scarf et al.'s (2013) results suggested that 3-year olds form episodic memories, but do not retain them for longer than 15 minutes. The present study aimed at replicating these findings using Scarf et al.'s method.

Hypothesis

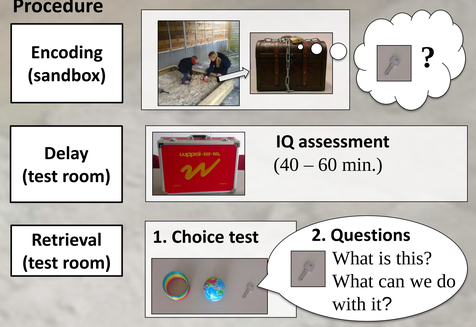
We predicted that more 4-year olds than 3-year olds would choose a key in order to open a locked pirate's chest that they found during an earlier episode of treasure-hunting in a different location (i.e., sandbox).

Materials and methods

Participants

N = 23 three-year olds (12 boys, 11girls)
N = 23 four-year olds (14 boys, 9 girls)

Procedure



Results

Test of main hypothesis

- All children were familiar with the concept of "key".
- Next to comparing the percentages of 3- and 4 – year olds who selected the key immediately in the choice test (1), we looked at the percentages of children who made verbal reference to the pirate's chest during the follow-up questions (2). In addition, children were allowed to reconsider their choice and we compared the percentages of children who selected the key at any point during the retrieval phase.

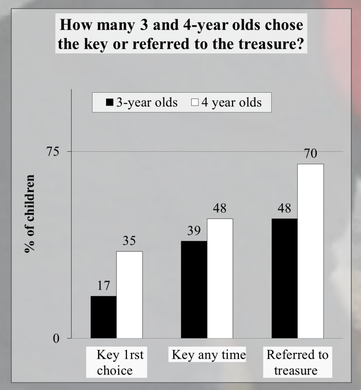
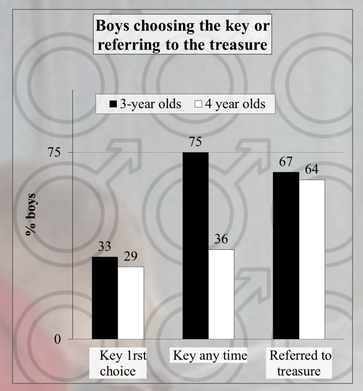


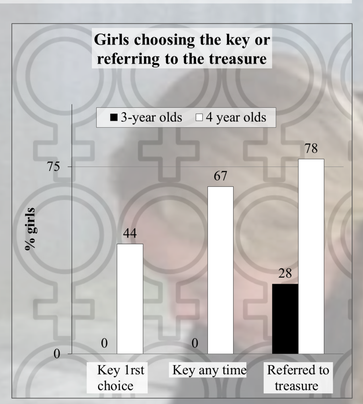
Figure 1.

- Although fewer 3-year olds than 4-year olds selected the key or made verbal reference to the treasure chest, the groups did not statistically differ, all $X^2(1) < 2.24$, *p's* > .13.
- The gridline at 75% represents the percentage of 4-year olds in Scarf et al. (2013, experiment 1).

Exploratory analyses

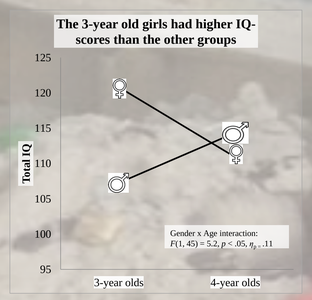
Next, we explored the role of gender, IQ and knowledge about pirates.

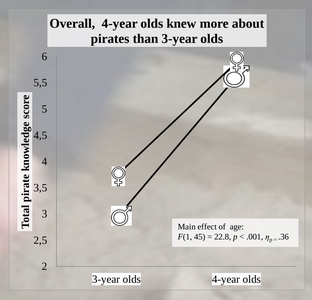




Figures 2a and 2b (above).
Boys and girls showed different retrieval patterns. More 3-year old boys than 4-year old boys selected the key at any point during test. For girls, more 4-year olds than 3 -year olds selected the key or made verbal reference to the treasure chest, all *p's* < .05.

Figures 3a and 3b (below)
The retrieval advantage for 3-year old boys was not due to higher IQ scores or more knowledge about pirates.





Conclusions

Contrary to predictions, in general 4-year olds did not select the key more often than 3-year olds. However, exploring gender differences revealed that 3-year old boys outperformed 3-year old girls. They even outperformed 4-year old boys in that more 3-year old boys picked the key at any time during the retrieval phase. These differences were not due to 3-year old boys having more knowledge about pirates or performing better on the intelligence test. If anything, the 3-year old girls had higher total IQ scores.

The present results do not confirm Scarf et al.'s (2013) findings that 4-year olds generally perform better in this particular episodic memory paradigm. It should be noted that the overall percentage of 4-year olds selecting the key as their first choice (35%) was much lower than the 75% reported by Scarf et al (2013). Procedural differences may account for this difference. For example, one of the distracter toys (the colourful ball or toy spring) may have been particularly attractive, to the disadvantage of selecting the key. A pilot study without a sandbox episode suggested that the ball and spring were selected equally often (42 %) and more frequently than the key (16 %). Future studies may employ less attractive distracters to see whether the overall percentage of key-selectors increases.

As for gender differences, there is no obvious reason to assume that boys display better episodic memory than girls in general. The superior performance of the 3-year old boys may be due to being more interested in pirates than girls. Although there were no differences in knowledge about pirates between 3-year old girls and boys, it might be that boys simply find pirates more appealing. They may thus have encoded the sandbox episode more strongly or benefitted more from self-generated retrieval cues. If so, episodes that are more in line with 3-year old girls' interests should boost their episodic memory performance. Future studies, *a priori* selecting larger groups of boys and girls, may shed further light on this.

All in all, the superior performance in the group of 3-year old boys challenges Scarf et al.'s (2013) conclusion that in general, 3-year olds more rapidly forget episodic information than 4-year olds.

Literature cited

Scarf, D., Gross, J., Colombo, M., & Hayne, H. (2013). To have and to hold: Episodic memory in 3- and 4-year-old children. *Developmental Psychobiology*, 55(2), 125-132. doi:10.1002/dev.21004

Tulving, E. (2005). Episodic memory and autonoesis: Uniquely human? In: H. S. Terrace & J. Metcalfe (Ed.), *The missing link in cognition: Origins of self-reflective consciousness* (pp.3-56). New York, Oxford University Press.

Acknowledgments

Thanks to Doety de Vries and Evelien Boerma for testing the children. We are grateful to Margreet Degen, Hans Knot and Linda Visser at the University Ambulatory Groningen for facilitating this study.
.

Further information

E-mail: j.p.wessel@rug.nl
Clinical Psychology & Experimental Psychopathology
University of Groningen
Grote Kruisstraat 2-1
9712 TS Groningen

rijksuniversiteit groningen 2014 | 400 jaar